Playing the game of public procurement of innovation

Experiences from a University Course

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Playing the game of public procurement of innovation: Experiences from a University Course

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Abstract

Given the emergence and diffusion of policies aiming at promoting the utilisation of public procurement as an innovation policy instrument, it is remarkable that very little scholarly attention has been given to the teaching of public procurement of innovation. This paper sets out to contribute towards mending this gap, by discussing some considerations made in the context of the development and set up of a university course in public procurement of innovation. A major challenge for such an endeavour is how to bring the complexities of real-life public procurement into a university class-room setting in a way that makes sense to students with relatively modest experiences from professional contexts. This challenge was taken on by introducing three different public procurement of innovation games in the curriculum, as presented in the paper.

Keywords Public procurement, Teaching, Public procurement of innovation

1. Introduction

Teaching public procurement means preparing students for "an extremely complicated function… that requires interdisciplinary skills and knowledge (Thai, 2001, p. 39). Public procurers should be trained not only to meet procurement goals but also non-procurement goals and/or secondary policies. The paper addresses an account of the latter, the increasing interest for utilizing public procurement as a means to stimulate innovation from the demand-side (Edler and Georghiou, 2007; Uyarra and Flanagan, 2010; Rolfstam, 2013; Lember et al., 2014). By putting out for tender public contracts that involve innovation, policy makers envisage to eventually increase competitive advantage in a global economy. This policy development seen in many countries in the world raises new demand for complementary skills and abilities. Thus, similar to private sector purchasing also public procurers are increasingly exposed to more strategic tasks (Zheng et al., 2007; Tassabehji and Moorhouse, 2008). Public procurers should possess knowledge and skills not only to carry out 'conventional' sourcing, but also public procurement of innovation in this paper understood as "purchasing activities carried out by public agencies that lead to innovation" (Rolfstam, 2013, p. 12). This understanding reflects the current policy interest for public procurement and its role as a leaver for innovation and can as such take place e.g. as technology procurement, as a result of pre-commercial procurement, and may involve both process and product innovation.

When it comes to university training, public procurement in general has been a neglected area (Thai, 2009). Available university courses tend to emphasise the legal aspects of the procurement process and give relatively modest room for the profound treatment of how public procurement can be utilised as an innovation driver. To some extent this could be

explained by a lack of scholarly attention to this specific sub-field. The implications for teaching have nevertheless rendered remarkably little attention among scholars, especially as one could argue that increased availability of procurement staff with specialist training in public procurement of innovation would increase the chances of success in public procurement of innovation projects. A recent Swedish public inquiry concluded also that the negligence of using public procurement as an innovation policy tool could partly be explained by the lack of available academic education on the topic (SOU, 2013). The purpose of this paper is therefore to help ameliorate this shortcoming by discussing some considerations made of an experimental master-level university course on public procurement of innovation that was developed and offered to students for the first time the spring semester 2013.

2. Literature

Teaching, skills and knowledge required for public procurement may be an endeavour that at least in the first glance comes close to opening the Pandora's jar. Following authorities in the field, public procurers' skill profiles should match what is a very complex practice. Public procurers should be able to "Balancing the dynamic tension between (1) competing socioeconomic objectives, (2) national economic interests, and (3) global competition as required by regional and international trade agreements; Satisfying the requirements of fairness, equity, and transparency; Maintaining an overarching focus on maximizing competition; Utilizing new technology to enhance procurement efficiency…" (Thai, 2009, p. 2). Different attempts have been made to capture and measure the complexity prevailing for both purchasing competence in the private sector as well as for public procurement. Narasimhan et al. (2001, p. 4) propose that purchasing "…can be measured as a multidimensional performance index comprised of performance along key enabling content elements for which the purchasing function has a primary responsibility". Ordered under five underlying dimensions; empowerment, employee competence, interaction frequency-tactical, interaction effectiveness-NPD, and buyer-seller relationship management these authors derive fifteen practices used as variables for measuring firms' purchasing performance (table 1.)

Empowerment	**Employee competence**	**Interaction frequency-tactical**	**Interaction effectiveness-NPD**	**Buyer-seller relationship management**
Involvement – Job-related decisions	Training for purchasing in quality and customer satisfaction	Purchasing's interaction with production	Purchasing's interaction with engineering	Risk sharing for capital investment with suppliers
Involvement Operational decisions	Training for suppliers in quality and customer satisfaction	Purchasing's interaction with quality control	Purchasing's interaction with R&D	Technical assistance and information sharing with suppliers
Autonomy in jobs	Performance evaluation related to quality control			Sharing of cost savings with suppliers
Job security				

Table 1. Variables used to measure purchasing competence (Narasimhan et al., 2001).

For public procurement, Thai (2001) defined five core elements of the procurement system understood as an institutional framework; policy making and management; procurement regulations; procurement authorization and appropriations; public procurement function in operations and feedback. This author also applied content analysis of text-books to outline

what is public procurement knowledge and found some developments. Recent books emphasized more topics such as procurement organization, regulations, ethics and socio-economics. Even if public procurement and private purchasing have some skills in common in these two models, it is worth noting that some differences prevail. Public procurers' work situation is much influenced by policy making, which is not as much articulated for private purchasing. The most important difference for our purposes here, however, concerns the role of purchasing in relation to innovation and new product development, an aspect not very much emphasized in the literature. One could argue, given the current interest in using public procurement as a means to stimulate innovation that the underlying skill-sets for enabling and promoting innovation should be made more explicit in future modeling of public procurement skills.

There is also an abundant range of literature addressing a particular skill many times reflecting developments that poses specific new demands on public procurers' skills. Caldwell et al. (2005) underscore the role of skills as well as institutional support for public procurement aiming at market promotion. Lawter and Martin (2005) pin-points the lack of skills and abilities to exercise discretion in relation to different emerging forms of public procurement partnerships. Knight et al. (2005) developes a framework for strategic supply management covering procurement team competences for understanding and managing supply networks. Roodhooft and Van den Abbeele (2006) suggest there might be a need for developing new public procurement skills in procurement of consulting services. Drawing on a literature review Vaidya et al. (2006) propose training to be one of the critical success factors for successful implementation of e-procurement. Public procurement skill sets have also been surveyed based on country characteristics. In a survey on Uganda, Basheka emphasizes the need of a multiple set of skills, which are probably common for most countries, but reports also on special challenges related to corruption (Basheka, 2010). Apart from detailed regulations and effective sanctions to fight corruption in public procurement in Africa in general, Appolini and Mushagalusa Nshombo (2013) underscore the importance of educating civil servants in ethical and morals codes of conduct.

The role of skills has also been discussed in the context of innovation (Edler and Georghiou, 2007). One element worth accentuating lies in the difference between public procurement understood as straight rebuys and public procurement of innovation understood as a new task (Robinson et al, 1967). Straight rebuys occur in effect many times as re-use of or incrementally revised already existing expiring contracts where the interaction between the procurer and the market is relatively modest. This kind of procurement activity typically secures the sourcing of consumables and relatively well-known products, such as fuel and stationaries. Public procurement of innovation understood as a new task raises particular demands for acquiring new information and considerations of new alternatives. Viewed as an act of innovation, public procurement becomes a special case of user-producer interaction (von Hippel, 1988) where interactive learning takes place (Lundvall, 1988; Lundvall, 1992). This in turn raises demand for possession of adequate absorptive capacity (Cohen and Levinthal, 1990).

As different from straight-rebuys, occurs public procurement of innovation many times in the form of projects. The project management aspects of public procurement of innovation have also been discussed in the literature (Rolfstam, 2007; Yeow and Edler, 2012). A starting point for teaching public procurement of innovation could therefore be to consider public procurement of innovation as a non-routine project. Viewed as a project, public procurement

occurs as a staged process (Caldwell and Bakker, 2009; van Weele, 2005). This is process that requires an array of different skills, involving both explicit and tacit knowledge. The generic project model for public procurement as outlined in fig 1 defines seven phases which, due to the procurement rules are sequential. It starts with a planning and preparation phase where the project is set-up. For most cases, the planning and preparation phase is the most critical in the sense that the activities that take place here often determine the outcome.

Planning and preparation
Market consultation and establishing need. Assembling project team and partnerships needed to manage the process. Project definition. Selection of procurement procedure. Determination of contract award criteria.
Notification and pre-qualification (if applied)
Initial advertisement and contract notice, inviting expressions of interest. Assessment of expressions of interest. Definition of shortlist.
Tendering
Issue of tender invitations. Arranging for dealing with clarification requests from bidders. Receipt of tenders.
Evaluation of bids
Formal tender opening and checks for compliance with requirements.. Tender evaluation of quality and price. Arranging tender presentations (if applied) Negotiating with selected tenderers (if applied). Selection of the most economically advantageous tender.
Contract Award
Notification to successful tenderer, Notification to unsuccessful tenderers
Contract Management
Monitoring that delivery meets specification, that deadlines are met.
Evaluation of procurement project
Draw lessons that might improve future procurement projects

Fig 1. Public procurement of innovation as a project (adopted from Lewis, 2003).

Examples of elements that typically need to be established in the planning and preparation phase are what tender procedure should be used, the specification of what will be procured, any requirements of suppliers that may be used as selection criteria and the award criteria used for the selection of supplier(s). In the generic case, once the tender call has been published, the process becomes more focused on managing the project in line with the decisions made in the planning and preparations stages and in that sense a matter of administration. In situations where more dynamic forms of procurement procedures are applied, such as the competitive dialogue, the negotiated procedure or pre-commercial procurement, the situation might be different however. When the contract has been awarded, the role of the public procurer becomes focused on monitoring contract compliance, and if necessary evoking any regulatory instruments written into the contract, such as issuing fines should the supplier fail to meet agreed deadlines and specifications.

Interaction with different actors is much emphasised in the innovation literature (Lundvall, 1992). Success of a public procurement of innovation project is many times dependent not only on interaction between procurer and contractor(s) but also with stakeholders who are not directly involved in the procurement contract (Newcombe, 2003; Olander, 2007; Rolfstam,

2010a), sometimes referred to as “other institutional actors” (Rolfstam, 2013). One example is the procurement of a bio-gas and upgrading plant that took place in the Swedish town Västerås in 2001-2002. The fuel grade bio gas that came out of the process was used in buses in the region, waste collection vehicles and cars. Biogas that was not upgraded to fuel quality was used for production of electricity and heat. The residuals remaining in this process were used as high quality fertilizers by local farmers. The system thus relied on supply of ley-crop from local farmers, and the collecting of bio-waste from local restaurants and households. As critical for the success of the system was to establish markets for the outputs the system would generate, bio-fuel to be used in vehicles, distributed heating, and fertilizers. Before commencing with the formal procurement process, the procurer secured agreements with suppliers, customers as well as legal approval from authorities (Rolfstam, 2013). A summary of potential roles which have an impact on public procurement of innovation projects are displayed in fig 2.

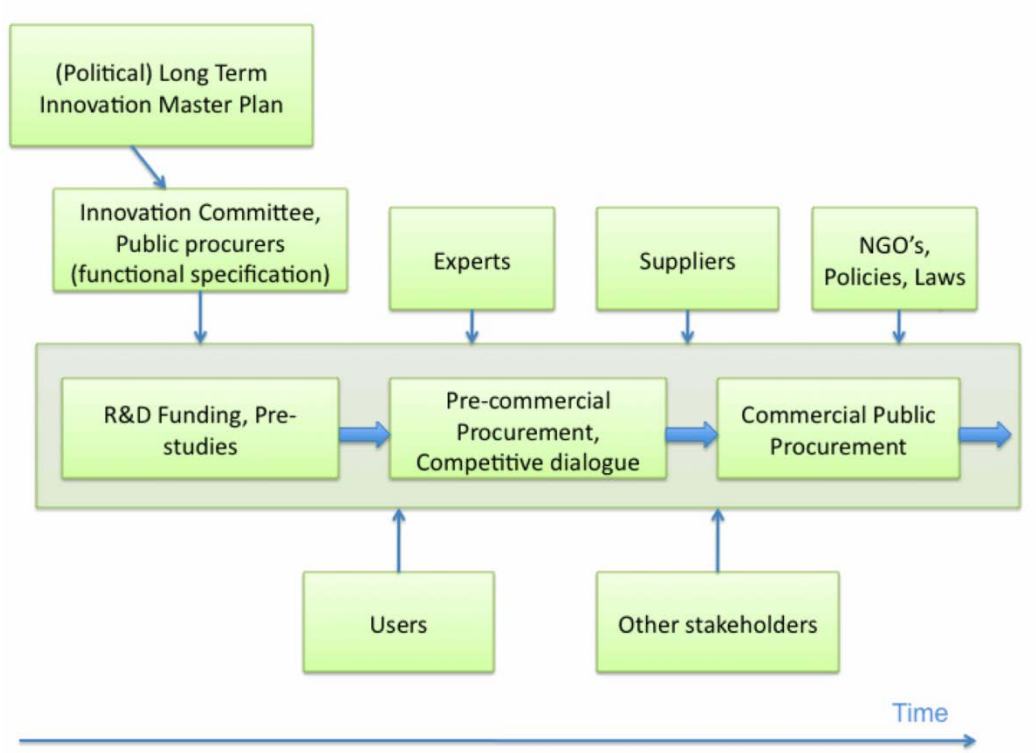


Fig. 2. Potential categories that affect public procurement of innovation projects adopted from Rolfstam, 2010b).

The appreciation of public procurement of innovation as a multi-stakeholder/ rationality activity adds also a limitation to teaching and training of public procurers. Based on case study research on public procurement of innovation projects Rolfstam (2013) derived a list of success factors, i.e. elements that seem to be important for successful public procurement of innovation projects. Included in the list were aspects clearly in range of public procurers. There were however also elements that manifest either in interaction with other stakeholders or being relatively disconnected from the range of public procurers themselves.

Elements within range of the skill sets of public procurers are skills related to the procurement procedures and procurement law; the ability to make technical specifications, and general management skills. A lack of knowledge of public procurement rules and procedures could be dealt with by providing different forms of skill upgrading. Technical competence for

specification refers essentially to the ability to know what is to be procured. When promoting innovation the application of a functional specification is often stressed, i.e. the procedure where desired functions and outcomes rather than technical details of the item to be procured are given in the tender call. The skills for specifications as well as management skills are, although they include a great amount of tacit knowledge, controllable, in the sense that they can be developed by individuals alternatively be allocated to a project by appropriate selection of individuals to be included in the project team. The other success factors depend to larger extent on external factors not directly ameliorated by training of public procurers. Sometimes public procurement of innovation projects take place as collaboration projects consisting of several stakeholders with slightly different user requirements. These are projects that require coordination skills. Even if such coordination can be regarded as a trainable skill, there might be situations when even substantial coordination skills are insufficient for success. To achieve institutional commitment is also partly controllable. In the end, however the decision to become committed prevails with the external stakeholder. Political support, as well as the allocation of resources, are elements that mainly should be seen as success-factors beyond the range of public procurement training, at least if seen from the perspective of an individual project.

Skill	**Description**	**Controllable**
Expertise on public procurement procedures and public procurement law	Understanding how to apply procurement procedures, award criteria	Yes
Technical competence for specification	Possess sufficient competence to know what to procure	Yes
Coordination for co-operative procurement	Coordinate the demand in projects with several customers	Partly
General project management skills	The ability to coordinate information, stick to agreed plans and meet deadlines.	Yes
Allocation of Resources	Non-routine allocation of time-consuming search for setting-up and managing projects	No
Political Support	Support from political leadership	No
Commitment from other institutional actors	Support not only from contractors but also other stakeholders affected by the project outcome.	Partly
Appreciation and understanding of the procurement rules	Supplier understanding of the peculiarities associated with dealing with a public customer.	No
Technology Champions	The availability of a person or a group of persons who champions the introduction and diffusion of the procured item	Partly

Table 2. Some success factors and to what extent they are within range of public procurement training. Adopted from Rolfstam (2013).

One often neglected aspect of public procurement of innovation concerns what happens after the actual procurement project has been concluded, i.e. the diffusion stage. One illustrative case in point was an attempt to introduce an innovative catheter into the National Health Service (NHS) hospitals in the UK (Rolfstam et al., 2011). As summarised in table 2, a number of institutional barriers slowed down the adoption of the innovative catheter into hospital wards. The successful introduction of the catheter in the ordering systems turned out to be necessary, but still insufficient for adoption. The findings underscore the importance of incorporating these issues also in training programs for public procurers of innovation. The generic assertion that needs to be stressed is that public procurement of innovation does not end when the formal procurement procedure ends, but may require attention to diffusion.

3. A university course in public procurement of innovation

The remaining part of the paper describes a course called "Creating and Managing Knowledge in Public procurement of Innovation". It is an elective course rendering 5 ECTS credits included in the MSc Programs in Innovation studies offered by Aalborg university, Denmark. The course was given for the first time during the spring semester 2013. Here follows a brief discussion on some considerations made in the curriculum development, as well as practical limitations that affected the outcome. The starting point for this exercise consists of some reflections on the delineations necessary to make in order to bring into the format of a short university course the complexities of public procurement and innovation. The main tool applied for this implementation was different forms of game-playing. After an outline of the course, the three instances of role-playing applied, are described.

Institutional Barrier	**Description**	**Coordination Activity Identified in the Case**
Getting into the supply chain	A product available in existing supply systems will be favoured before products not available in existing supply systems.	Rapid Review Panel set up to evaluate solutions suggested by industry and "fast-track" into the supply chain, those found to be useful.
Organised scepticism	Clinical staff requiring a high level of proof before an innovation can be adopted.	Conduct clinical studies that confirms supplier's claims.
No technology champion	In comparison to other healthcare technologies, there appeared to be no clear champion catheters.	N/A
Decentralised decision structure	A centrally made decision to make certain technologies available may not necessarily lead to adoption in lower layers of the organisation.	Authority innovation decision. Removing existing alternative option (conventional catheter) from supply chain.
Silo budgeting	Spending and gains from spending do not affect the same budget, which removes spending incentives.	Additional funds allocated by central hospital management to cover additional cost.
Price	An innovation may be more expensive per unit (although less expensive over its lifecycle) than already existing technology.	Additional funds allocated by central hospital management to cover additional cost.
Problems with demonstrating value of innovation	Problems in showing the value of innovation (and hence justifying adoption) never tried out before in a practical setting.	Conducting long-term historical studies. Development of business case.
De -spending	Although proof supports the value of innovation the question remains what should be removed from the budget, to allow the adoption of the innovation	N/A
Existing agreements with supplier of current technology	Commitments made in current contracts prevent re-allocating of resources.	Contract clauses enabling contract termination of depreciated technology.

Table 3. Institutional barriers working against innovation adoption (adopted from Rolfstam et al., 2011).

Delineations made

To delineate the boundaries of a course for public procurers of innovation is not a straight-forward task. Above was outlined some examples of relevant generic competence and skill areas, such as public procurement law, procurement procedures, and different management skills. Additional content that could be included would concern more profound understanding of innovation dynamics and theory that would deepen the strategic understanding of how, when, and when not to evoke public procurement as an innovation policy tool. Other issues are the role of standards and labelling, special techniques such as user-driven innovation or participatory innovation, patenting, licensing, etc. Another practical circumstance is that public procurement of innovation behaviour might be sector specific. Public procurement of innovation in health-tech may not be conducted in the same way as it occurs in the construction sector. Also, the maturity of the technology procured may be different. Special challenges that prevail in public procurement of product innovation may not prevail in process and/ or service innovation. Due to the limitations, basically determined by the length of the course, many of these aspects had to be excluded from the course curriculum. One assumption was for instance that, given the students were master students in innovation studies, that the students already possessed knowledge concerning innovation dynamics.

Yet another challenge that should be considered emerges in the perception of public procurement of innovation as determined by many different actors and stakeholders. Successful outcomes of public procurement of innovation projects may rely on the appropriate support from political leadership, managers, skilled procurement staff, suppliers and the adequate allocation of special competence as discussed above. An ambition to upgrade all these special skills may not easily be transferred into one single course. The challenges for curriculum development for public procurers of innovation are therefore different from e.g. training programs for driving. The requirements for attaining a driver's license include the gaining of a variety of competences such as legal competence, practical ability to handle a car, as well as internalisation of values of safe and responsible driving. The generic ambition to achieve safe driving can however to large extent be achieved by a course targeting one generic group of students, individual drivers. To bring the metaphor into public procurement of innovation teaching would mean to develop specific courses for involved 'drivers', i.e. courses for suppliers, politicians, NGO's etc. With the resources available for this course such diversification was not possible.

The curriculum development was based on the notion that it may refer to many things (e.g. Nygaard et. al., 2008). It may refer to the body of knowledge transmitted from the teacher to the student. The central source of such transmission is texts. Such a view reflects the listing of certain texts (typically books and journal articles) students are supposed to read, and lectures given by the teacher aimed at facilitating learning of these texts. Knowledge in that sense refers to experience and reasoning on a subject and the ability to comprehend and make judgements on theoretical models in a subject area. Another understanding of the curriculum notion views knowledge as practise and stresses the gaining of skills. This is a form that stresses less reading, in favour of acting, and learning by doing. That aspect of the curriculum notions prompts definitions of the abilities and skills gained after completion of the course, i.e. the ability to produce a solution for a problem in a specific domain. From a training perspective public procurement of innovation is a practice that requires both these aspects. Some basic "book-knowledge" is required, but also management abilities one cannot easily gain through reading.

A generic success factor for public procurement of innovation projects appears to be to include staff with sufficient practical experience (Wade and Björkman, 2004), in others words public procurers in possession of an adequate level of tacit knowledge (Thai, 2001). Perceiving public procurement of innovation essentially as a practice may pose some problems for teaching in an academic environment commonly seen as a vehicle for acquiring theoretical knowledge without connection to a real-life context. Unlike a vocational training setting where students typically already have acquired professional experiences elsewhere, university students might be less experienced and therefore less able to grasp what could be perceived as rather abstract as well as complex content. "Even when students are able to reach a good grasp of the lectures, their lack of hands-on experience normally impedes the acquisition of practical knowledge. As a result, most [students] do not accumulate any practical experience, nor do they develop any relative skills until they actually enter the field" (Wang et al., 2010, p. 671).

Any designer of a university course devoted to public procurement of innovation may therefore consider carefully how to secure the facilitation of deep learning that fully integrate the four modes of the experimental learning cycle, experiencing, reflecting, thinking, and acting (Kolb and Kolb, 2010). In line with attempts to deal with this problem in other related teaching subjects, such as design (Iversen and Buur, 2002), or open innovation (Bogers and Sproedt, 2012), focus turned towards game playing. The paper discusses three games that were invoked in the course. 'The strategic game on public procurement of innovation' where students were assigned to design a context in which a public procurement of innovation project could occur; "The stakeholder rationalities game", a role play exercise where participating students were assigned to individual stakeholder rationalities; "The public procurement of innovation marathon" which was a full-day workshop where the morning session was spent acting as public procurers defining a tender call, followed by an afternoon session where students where acting as suppliers submitting bids.

Session/ Subject	Literature
L1. Introduction/ Public procurement as an innovation policy instrument (part 1).	Edler and Georghiou (2007), Nonaka (1994)
L2. Public procurement as an innovation policy instrument (part 2).	Geroski (1990), Gregersen (1992), Rolfstam (2009), Uyarra and Flanagan (2010)
WS1. Strategic Game on Public Procurement of Innovation	Cooke (2004), Rolfstam (2012a)
CFE1. Challenging the public organisation	
L3. The rules and success factors of the public procurement of innovation game	Hollingsworth (2000), Searle (2005), Rolfstam (2012b),
L4. Public procurement law crash course	Directive 2004/17/EC, Directive 2004/18/EC, Rolfstam (2007)
L5. Managing Public procurement of innovation	Ågren and Landin (2012)
WS2. The role and impact of stakeholder rationalities	Olander (2007), Rolfstam (2013), Rolfstam et al. (2011)
CFE2. Challenging stakeholders	
L6. Public Procurement of innovation Marathon Workshop (Preparation)	Relevant literature
WS3. Public Procurement of innovation Marathon Workshop (Execution)	Relevant literature
L6. Debriefing, Summary, Exam hints	

Table 4. Outline of a course in public procurement of innovation.

Outline of the course

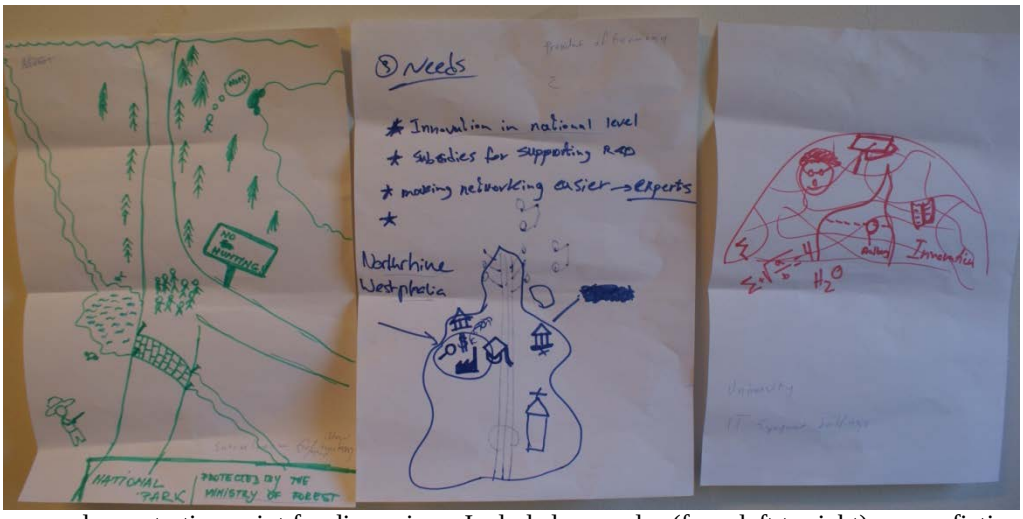
The course was delivered through the application of three basic teaching methods, Lectures (L), Workshops (WS) and Change Facilitating Exercises (CFEs) (see table 4). The purpose of the lectures was to satisfy the theoretical requirements, the "book knowledge". The literature covered mainly innovation theory dealing with public procurement of innovation. A particular focus was laid on institutional theory, as this would provide a theoretical framework for understanding changes assumed to be required in order to facilitate the development of public procurement of innovation practice.

Some legal texts were also covered, including the EU Directives of public procurement. One component of the lecture series was a public procurement law crash covering the formal rules on European public procurement. The lecture was seen as an opportunity to describe procedures by exemplifying how the procedures can be used to achieve public procurement of innovation. A lecture enables mainly learning of theoretical models and offers relatively little in terms of application. The practical aspects were instead facilitated through the game-playing workshops.

The workshops where more connected to the specific content of the course, while the change facilitating exercises had a stronger focus on unleashing creativity in general. The change facilitating exercises were inspired by Edward de Bono's work on "the six thinking hats", a method helping to structure collaborative problem solving and avoid destructive meetings by making participants jointly discuss one aspect of the problem to be solved at the same time.

Public procurement of innovation as a strategic game

One of the workshops consisted of a session called "the Strategic Game on Public Procurement of Innovation" displayed in fig 3. This exercise was executed at the Ecoprocura conference in Malmö, (Rolfstam and Ågren, 2012) and also at the Participatory Innovation Conference in Sønderborg in 2011 where participants are asked to develop an innovation strategy for public procurement of innovation. The exercise involves the application of taxonomy of regional systems of innovation (Cooke, 2004) and the Hommen matrix which defines interaction modes and market effects for public procurement of innovation (Rolfstam, 2013). Participants were asked to take on the role of a public authority and define a need to be satisfied by a public procurement of innovation project with the starting point of their understanding of the type of innovation system prevailing in their region (see fig. 3). This was followed by discussions on potential barriers and ways to overcome these barriers. As a starting point participants were asked to draw a map of their context in which the procurement project was supposed to occur (Pic 1).



Pic 1. Maps used as a starting point for discussions. Included examples (from left to right) were a fictive public national park, a regional system in Germany and a university.

Public procurement of innovation as a stakeholder's rationality game

The second workshop took as starting point, the phenomena many times occurring in public procurement of innovation projects involving different stakeholders with different rationalities (Rolfstam, 2013). This was an enactment session that relied on the participants imagination and willingness to take on roles as different stakeholders, that draws on forum theatre. The set-up was the town Smallville and a fictive public hearing where different stakeholders were gathered to discuss a decision made by the local authorities to "build an innovative and sustainable elderly home, manned with less health staff". The roles and assigned rationalities included the local political leadership, political opposition, multinational firms, the head of fire and rescue service among other categories (see pic 2).


Pic 2. Students playing out different stakeholder roles in a fictive hearing meeting about the idea of building an innovative elderly home in the local community.

The public procurement of innovation marathon

The final game in the course took place as a full-day workshop where participants were divided into teams. In the morning these teams acted as public procurers setting up tender calls including different levels of innovation. In the afternoon, these groups took on the role of suppliers submitting bids to the tender calls developed by their fellow groups in the

Strategic Game on Public Procurement of Innovation

1. Who are you?

2. Define your area! (Draw a map!/ Apply the Cooke taxonomy!)

Governance Dimension:

Grassroots: Locally organised technology transfer. Research competence highly applied or near market, low supra-local coordination, funding diffuse in origin.

Network: Technology transfer initiated in multilevel networks. Funding guided by agreements between banks, government agencies and firms. Research competence is mixed; both pure and applied, blue skies and near market.

Dirigiste: Technology transfer mainly animated from outside. Funding is centrally determined. Basic/fundamental research. High level of coordination, since it is state-run.

Business Innovation Dimension:

Localist: Very few or no large indigenous firms and relatively few large branches of externally controlled firms. Research reach of firms not very extensive. Few major public innovation/R&D resources, maybe smaller innovative firms.

Interactive: Domination neither by large nor small firms. Balance between private and public research institutes. Presence of larger firms' regional headquarters. Highly associated vertically and laterally, industry networks and clubs.

Globalised: Domination by global corporations, often supported by clustered supply-chains or father dependent SME's. Research reach largely internal and highly privatistic and determined by larger firms rather than public (local) needs. Innovation infrastructure aimed at helping SME's may be under development by public agencies.

	Grassroots	Network	Dirigiste
Localist			
Interactive			
Globalised			

3. The implication: What is your need/ what will you procure?

4. What kind of procurement do you envisage to make (The Hommen matrix)?

Role in Relation to Market / Type of Social Need	Initiation Development	Escalation Adaptation	Consolidation Standardisation	Destruction Removal
Direct Needs intrinsic to public agencies	Direct Initiation	Direct Escalation	Direct Consolidation	Direct Destruction
Co-operative Congeneric, or shared needs	Co-operative Initiation	Co-operative Escalation	Co-operative Consolidation	Co-operative Destruction
Catalytic Extrinsic needs to public agencies	Catalytic Initiation	Catalytic Escalation	Catalytic Consolidation	Catalytic Destruction
Distributed Need identified through exposed public opportunity	Distributed Initiation	Distributed Escalation	Distributed Consolidation	Distributed Destruction

5. What are the barriers/ problems you might encounter?

6. How would you solve/ avoid them?

References: Cooke, P. (2004). Regional Innovation Systems – an evolutionary approach. In: Cooke, Heidenreich and Braczyk (eds.): Regional Innovation Systems, p. 1-17. Routledge 2004 (17p.) - Rolfstam, M. 2012. Understanding Public Procurement of Innovation: Definitions, Innovation Types and Interaction Modes (February 28). Working paper. Available at SSRN: http://ssrn.com/abstract=2011488 or http://dx.doi.org/10.2139/ssrn.2011488.

Fig. 3. The template for the Strategic game on public procurement of innovation.

morning. One of the challenges when designing this game was to find a way of including the innovation element, while at the same time avoid unrealistic bids from the suppliers. This was done by providing a finite amount of resources to be spent on the bids in the form of tokens symbolising an abstraction of components typically determining tender outcomes. Each supplier team was assigned the following set of tokens; Price; Production resources; Specification compliance; Quality points, R&D Resources, and Bought before. For the three tender calls included in the game, the challenge for the suppliers was to come up with a sound strategy regarding what resources should be spent in what tender call. The suppliers submitted their bids in sealed envelopes that where publicly opened (i.e. in front of all the participants) and evaluated assisted by an evaluation template (fig 4).

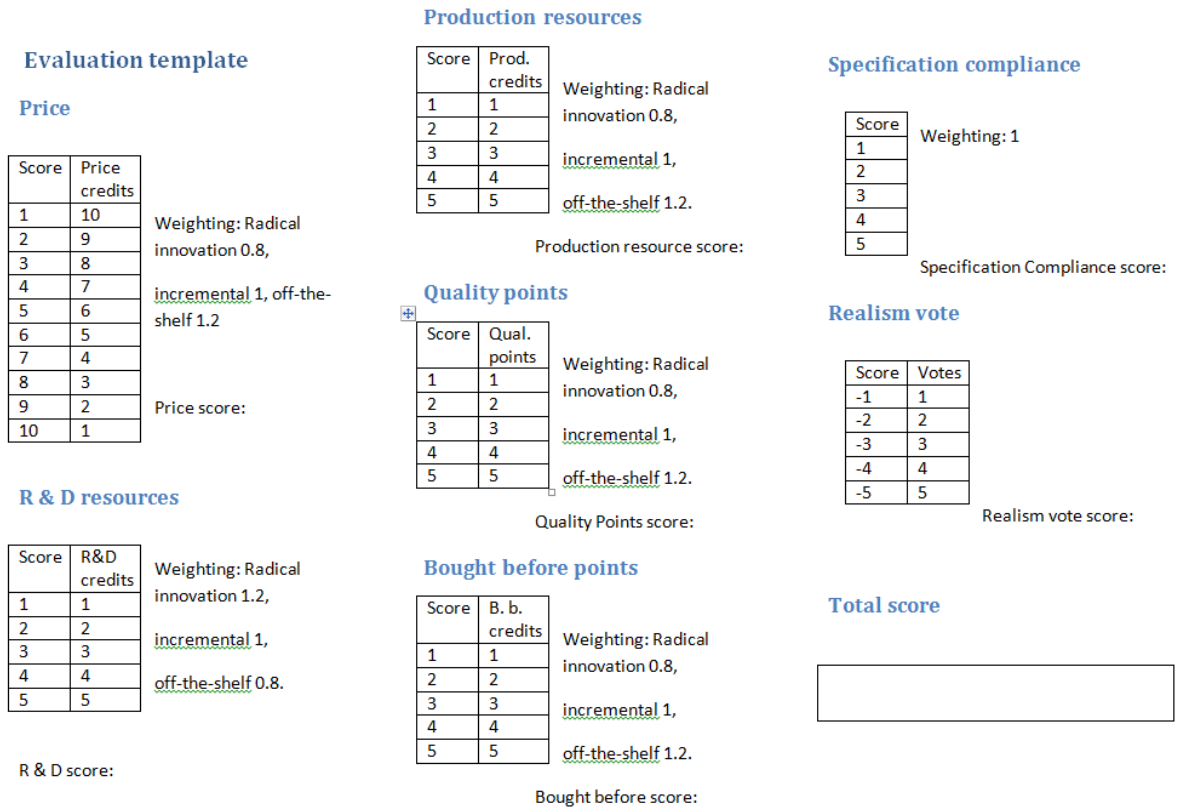


Fig. 4. The evaluation template used to award contracts in the Public Procurement of Innovation Marathon

4. Concluding Remarks

This paper explores considerations made in relation to an ambition to develop a curriculum for training of public procurers of innovation. It discusses some reflections made to provide a starting point for that pursuit as well as outlining a curriculum for a master level course developed for the spring semester 2013. The paper described an attempt to make a course, developed within the university setting, that capture some of the complexities in real-life public procurement of innovation through playing games. Student reflections collected after the completion of the course reported about a fascination for not only reading, but actually applying functional specification. Another ‘eye-opener’ concerned the role of the public sector in relation to innovation. All previous courses experienced by the student up to this point had focused on private firms. Apparently this course created awareness for the public sector as a driver for innovation. Yet, another anecdotal piece of evidence was the fact that several students subsequently signed up for internships where public procurement of

innovation was a central issue. It suggests that playing games as a means to introduce students to the complexities of public procurement of innovation may be a useful approach. One potential trajectory to pursue further concerns the development of courses targeting special sectors and special tasks. The latter of these aspects will probably mean an engagement in the discussion concerning who is a public procurer. Is it the category of staff that works in public procurement units, public agency managers, the political leaderships, perhaps suppliers or any other thinkable category? The generic conclusion appears to be the point that further research is needed concerning curriculum development for public procurers of innovation.

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